CLAIMS

What is claimed is:

1.   A system for tracking network session information, the system

comprising:

5   an information source module having a source information input and a

standardized information output, a source information corresponds to

network usage information, a standardized information corresponds to the

network usage information transformed into a standard format;

a first program having at least a first standardized information input and an

10   enhanced data output, a first standardized information input corresponding

to the standardized information, an enhanced data corresponding to the

standardized data after at least a partial transformation, the at least partial

transformation being defined according to a data record format;

a second program having at least a first enhanced data input and a data record

15   output, the first enhanced data corresponding to the enhanced data, a data

record corresponding to the first enhanced data, the data record being

formatted according to the data record format;

a database storing the data record; and

wherein the second program merges duplicate data records that represent the

20   same network usage information.

2.   The system of claim 1 wherein the at least partial transformation is

defined from a data enhancement procedure, and wherein the data record format

includes a plurality of fields and wherein the data enhancement procedure defines how the standardized information is to be transformed into the plurality of fields of the data record format.

3. The system of claim 2 wherein the data enhancement procedure includes at least a field enhancement wherein the field enhancement defines a source for a predetermined field in the plurality of fields.

4. The system of claim 2 wherein the data enhancement procedure includes at least a field enhancement wherein the field enhancement defines a function to be applied to at least a portion of the standardized data.

5. The system of claim 2 wherein the data enhancement procedure defines a plurality of field enhancements, wherein each field enhancement defines network usage information to be stored in the plurality of fields.

6. The system of claim 2 further comprising a second information source module, the second information source module having a second source information input and a second standardized information output, a second source information corresponds to a second network information, a second standardized information corresponds to the second network information transformed into a standard format, and wherein the data enhancement procedure includes a first definition of at least a first field in the plurality of fields being from the standardized information, and at least a second definition of a second field in the plurality of fields being from the second standardized information.

7. The system of 6 further comprising a proxy server and a domain name system (DNS) server, and wherein the information source module receives the network usage information from the proxy server, and wherein the second information

source module receives the second network information from the DNS server, and wherein the first definition defines that a source IP address supplied by the proxy server should be put into the first field, and wherein the second definition defines a URL supplied by the DNS server should be put into the second field.

5   8.   The system of claim 1 wherein the second program manages the first program and the information source module.

9.   The system of claim 1 wherein the second program causes the data record to be stored in the database.

10.   The system of claim 1 wherein the information source module is

10   configured to receive the network usage information from a predetermined network device.

11.   The system of claim 1 wherein the at least partial transformation includes policy-based data aggregation which defines how network usage data should be aggregated.

15   12.   The system of claim 1 wherein the network usage information includes IP session data.

13.   The system of claim 1 wherein the data format includes a plurality of fields including a source IP field, a destination IP field, a source host field, a destination host field, a service type field, a date and time field, a duration field, a

20   total number of bytes field, and a counter field.

14.   The system of claim 1 further comprising a customer care and billing system coupled to the database, the customer care and billing system for accessing the database to generate a bill from the data record.

15.   A network usage accounting system comprising:

an information source module coupled to receive network information from a

network device;

a gatherer coupled to receive the network information source module, the

gatherer for performing data enhancements on the network information to

5   create a plurality of data records;

a central database storing the plurality of data records; and

a central event manager coupled to receive the plurality of data records, the

central event manager merging duplicate records in the plurality of data

records, the duplicate records representing the same network usage

10   information.

16.   The system of claim 15 wherein the information source module is

configured to receive network information from a network device chosen from the

group of network devices consisting of a proxy server, a domain name service server,

a firewall, a RADIUS server, and a router.

15   17.   The system of claim 15 wherein the gatherer performs filtering and

aggregation on the network information.

18.   The system of claim 15 wherein the plurality of data records have a

predefined data format comprising a plurality of fields, and wherein the data

enhancements includes at least a first data field enhancement to enhance the network

20   information to fill in the first data field.

19.   The system of claim 18 wherein the first data field corresponds to a

source IP address field and wherein the data enhancement includes extracting a source

IP address value from the network information.

20. The system of claim 18 wherein the first data field corresponds to a URL name field and wherein the data enhancement includes requesting a URL name from a domain name service server.

21. A method of gathering and aggregating network usage information

5 from a set of network devices, the system using at least a first program and a second program coupled in communications, the method comprising:

accessing network communications usage information;

filtering and aggregating the network communications usage information using the first program;

10 completing a plurality of data records from the filtered and aggregated network communications usage information, the plurality of data records corresponding to network usage by a plurality of users;

storing the plurality of data records; and

merging duplicate records in the plurality of data records.

15 22. The method of claim 21 wherein completing the plurality of records includes accessing user account information.

23. The method of claim 21 wherein completing the plurality of records includes for each data record determining a corresponding source IP address, a corresponding URL, a corresponding type of service used, and a corresponding

20 amount of time used.

24. The method of claim 21 wherein the system includes a third program coupled in communications with at least the second program and wherein completing the plurality of records includes accessing the third program to determine network

account information and including the network account information in at least a first record in the plurality of records.

25. The method of claim 21 wherein merging the duplicate records includes comparing a plurality of fields in the data records to identify data records

5   corresponding to the same network session and merging the corresponding records.

26. The method of claim 21 wherein merging the duplicate records includes automatically deleting a duplicate record.

27. The method of claim 21 further comprising using the second program to automatically update the filtering and aggregation performed by the first program.

10   28. A network usage tracking system comprising:

means for accessing network communications usage information;

means for filtering and aggregating the network communications usage

information using the first program;

means for completing a plurality of data records from the filtered and

15   aggregated network communications usage information, the plurality of

data records corresponding to network usage by a plurality of users;

means for storing the plurality of data records; and

means for merging duplicate records in the plurality of data records.

29. The network usage tracking system of claim 29 wherein the means for

20   completing the plurality of data records includes one or more networked computers running one or more programs.

30. The network usage tracking system of claim 29 wherein the means for storing the plurality of data records includes a relational database.

31. ~~The network usage tracking system of claim 29 wherein the means for storing the plurality of data records includes an object database.~~